Perspective

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The Ghost of the Missing Edinburgh Piper Boy

For this project, we are drawing on the myth "The Ghost of the Missing Edinburgh Piper Boy", extracted from MacQueen (2018).

Edinburgh is said to be one of the most haunted locations in Scotland and indeed Europe. Edinburgh Castle also has its fair share of ghosts, and over the years, there have been many reported paranormal sightings. One such ghost is that of a young boy who played the bagpipes. The sad story dates back several hundred years when a number of tunnels were found under the castle that seemed to lead towards Holyrood House, the royal palace that stands at the bottom of the Royal Mile. Holyrood Palace stands on the grounds of the ruined Augustinian Holyrood Abbey founded in 1128 at the order of King David I.

When found there was great curiosity to see where the tunnels beneath the castle would lead. However, the entrance was only small enough for a young boy piper to get through. He was sent down with his bagpipes to investigate. As instructed he played the pipes loudly as he walked through the tunnel. Those above ground could therefore trace his progress and work out where the tunnel went. This worked well for a time, then suddenly the pipes stopped somewhere near the site of Tron Kirk, a church which is a well-known landmark on the Royal Mile.

Search parties undertook rescue attempts, but the boy piper had vanished. He was never found and although rescue parties were sent to look for him, there was no trace of the piper. With the disappearance of the piper the tunnel was sealed. But Edinburgh being Edinburgh, the story did not end there. Ever since that time many people have reported hearing the faint underground sounds of a lone bagpipe being played far below ground under Edinburgh Castle and the Royal Mile.

Idea

The idea for this project is based on the myth of the ghost of the missing Edinburgh piper boy. From this myth, we aim to showcase the nightmare that the child endured. In this instance, we also wish to connect it to the current global situation, as it can also be perceived as a nightmare without escape.

We want to present the audience with various perspectives, such as those of humans, animals, and insects. By highlighting these different viewpoints, we hope to shift our own perspective, enabling us to see problems from alternate angles to magnify the small things we typically overlook and vice versa.

The myth is set in the Edinburgh tunnels, and considering the inaccessibility of filming there, we have decided to capture footage in the tunnel at McEwan Hall and use that footage to map the tunnels using 3Ds Max. This software will allow us to design a new maze based on our footage.

Another important part of this project is the sound; as a group formed completely by sound designers, we take pride in providing the best sound experience possible because we want this to be an immersive experience; the use of an ambisonics type of recording is to be used to provide a 360-sound experience. We will also record different IRs on the tunnel to be able to create the reverb in sounds recorded in studios as this will help us record clean sounds without worrying about outsiders' interference, musically talking we are going to record a real piper player to accompany the audience in the tunnels.

We believe presenting the project to an audience as an installation, with screens and speakers surrounding the space, is best. This experience should impart a sense of being trapped; there will be no escape, creating a psychological horror-themed project.

Projects we've taken inspiration from:

- Night Walk for Edinburgh (Fruitmarket 2024): This is quite an intriguing project, and for our own project, we can certainly draw inspiration from it, as it is set in Edinburgh at night and features some frightening elements, leaving you pondering the entire story for some time.
- Inunaki Tunnel video game (阿津 2019): The horror game video provides valuable insights into our project, particularly in the areas of sound design and first-person perspective, which are crucial for creating an immersive experience. In terms of sound design, horror games often use dynamic soundscapes to evoke fear and tension. Techniques such as spatial audio, sudden auditory cues, and ambient noise can inspire us to design the auditory experience in our project. For example, maybe we could use ambisonics recording to create a 360-degree sound

environment that mirrors the immersive qualities, enhancing the psychological impact on participants.

- THE TUNNEL – Short Horror Film (Andrew Clabaugh 2022): The sound in the tunnel has a long reverberation, and the video clips are dominated by repeated montage, creating an inescapable scene. Breath— point of Audition sound.
- The Train Tunnels (Nightmare) (LoadingHD 2024): This is a thriller game taking place in a train tunnel, which contains a lot of tunnel elements, and the protagonist tries to escape from the tunnel, which is the similarity between this reference and our project. Besides, in this game, whenever danger comes, we can hear the sound of the train approaching gradually. This kind of sound not only serves as a reminder to the other party but also brings nervous emotions to the audience. I think this is the thinking brought by this reference.
- "Twisted Terror: A Nightmare Walk Through the Haunted Zigzag Tunnel (""Twisted Terror: A Nightmare Walk Through the Haunted Zigzag Tunnel ","n.d.): This video piece is coloured in black and white, with a subjective point of view, giving great sensation of horror and myth. The perspective is shaking subtly constantly, enhancing the intensity and insecurity. The sound piece contains simple notes in a minor register of the synthesiser, which builds up a spooky atmosphere to intensify the horrifying immersion.

Narrative arc

Beginning (2 min)

We start the experience by waking up in the tunnels as the piper boy

A person appears to tell the audience a bit of the myth and situate them in the experience. The person tells them that they've woken up and that they are going to go through the same experience the piper boy experienced and tells them that they should try and find an exit so they don't suffer the same destiny as the piper boy.
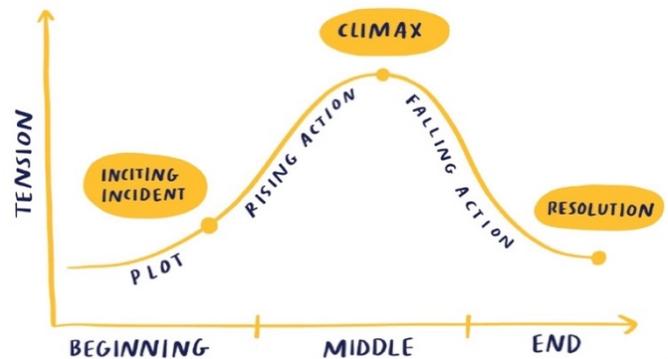

Figure 1Esselman (2024)

Inciting incident:

The audience starts walking around, trying to get out, and they see the door and open it.

Middle (6 min)

We encounter climate change situations, and we cannot escape

Four doors/ four perspectives

1. Fire - fish
2. Floods - insects
3. Earthquake - Dog
4. Typhoon - Bird

Falling action:

After the four doors close, all the doors open at the same time, the sounds come out, and the person from the start appears again, telling them they've failed to find the exit and that they should run before they perish

End (2 min)

The experience ends when we see a small light at the end of the tunnel.

Research

Edinburgh's myths

Edinburgh, capital of Scotland, is a city steeped in mystery, folklore, and legend, and so is known as one of the most haunted cities in the world. From haunted streets and mythical creatures to infamous figures and sacred relics, its rich cultural heritage is shaped by stories that have been passed down for generations. We are going to explore four of Edinburgh's most famous myths: Annie's Room, the origin of Arthur's Seat, the tale of Major Thomas Weir, and the Stone of Destiny. Each of these stories adds to the appeal of this ancient city, blending history with myth to create an unforgettable tapestry of the supernatural and the legendary.

Let us start with Mary King's Close, it is one of Edinburgh's most famous haunted locations ("Haunted City Guide - Forever Edinburgh," n.d.). During the 17th century, it was sealed off during the pneumonic plague, also known as the black death (Sonja 2021), trapping the infected residents inside. Many people died while being trapped inside, and to this day it is said that some ghosts are still roaming Mary King's close. One of the most famous ghost stories located at Mary King's Close is the one of Annie's room.

Annie was a young girl, who, according to legend, was abandoned by her family during the plague and died alone in sorrow. Her presence is so strongly felt that many visitors claim to experience an overwhelming sensation of sadness in her "room." (Edinburgh, n.d.) Over the years, people have left toys and gifts to comfort her restless spirit. Annie's Room remains one of the most visited paranormal sites in Edinburgh, drawing ghost hunters and curious tourists alike.

Figure 2 (The Real Mary King's Close 2023)

Figure 3(File:Arthur's Seat, Edinburgh.JPG - Wikimedia Commons 2012)

Arthur's Seat, one of the seven hills in Edinburgh (Webster, n.d.) While its name's true origin remains uncertain, one of the most enduring legends tells the tale of a sleeping dragon. According to the story, a giant dragon once terrorised the villages surrounding Edinburgh, attacking livestock and instilling fear into the locals' lives. Over time, the dragon became lazy after indulging its insatiable appetite. After one particularly large feast, the dragon flew to the top of a hill to rest and never woke up again (Louie 2023).

As centuries passed, its massive body turned into the hill we now call Arthur's Seat. From a distance, the outline of the hill is said to resemble a sleeping dragon silently watching over the city. Although this tale remains folklore, it enriches Edinburgh's cultural heritage and adds a sense of wonder to the city's landscape.

Another theory suggests that Arthur's Seat was the legendary Camelot, the home of King Arthur and his noble Knights of the Round Table.

There is one last reason, and probably this is the most believable one, as it is said to come from the Gaelic phrase "Àrd-Na-Said," which translates roughly to "Height of Arrows." Given that Holyrood Park once served as the Royal Hunting Grounds, it is rumored that the greatest distance an archer could shoot—251 meters—would reach the summit of the hill, metaphorically turning it into Arthur's "seat" (Ugc 2025).

There is another myth relevant to Arthur's Seats, King David and the white stage. Grass Holy Park at the foot of Arthur's Seat was a royal hunting park before (Brown 2021). As recorded in the Chronicle of Holyrood Abbey, the king was hunting in Holyrood Park, and then he saw a stag. He attempted to hunt the white stag, and as the chase continued, only the king remained in pursuit. As the king relentlessly followed the stag, it hid in the bushes, preparing to retaliate against him. At this dangerous moment, the king noticed a crucifix nestled between the stag's antlers. He seized the crucifix, and suddenly, the white stag panicked and fled in terror. (Chronicle of Holyrood Abbey, 89–92).

Major Thomas Weir, once a highly respected figure in 17th-century Edinburgh, was admired for his devout religious faith and esteemed public image. However, his story took a dark turn in the year 1670 when he suddenly confessed to practicing witchcraft and making a pact with the devil. His sister, Janet Weir, was accused of being his accomplice, and both were found guilty and executed. Following his death, Major Weir's home in West Bow, Edinburgh, developed a sinister reputation. Locals reported eerie lights, strange noises, and ghostly apparitions. Some even claim to have seen Major Weir's spirit wandering the streets of Edinburgh's Old Town. (Moon Mausoleum 2022)

The Wizard of West Bow legend remains one of the city's most chilling tales, reinforcing its reputation as one of the most haunted places in Scotland.

The Stone of Destiny, also known as the Stone of Scone, is one of Scotland's most significant historical artifacts, symbolizing Scottish sovereignty. According to legend, a Scottish king must be crowned upon this stone to be recognized as a legitimate ruler. (O'Connell 2023) Some tales suggest that the stone was the very one mentioned in the Bible, upon which Jacob rested his head. Historically, the stone was taken by King Edward I of England in 1296

Figure 4(20 Facts Revealed About the Stone of Destiny, n.d.)

during his conquest of Scotland and placed in Westminster Abbey, where it was incorporated into the coronation chair to signify England's control over Scotland. Despite this, the stone remained a powerful symbol of Scottish independence.

In 1996, the British government returned the Stone of Destiny to Scotland, where it is now housed in Edinburgh Castle alongside the Scottish Crown Jewels. However, as part of a long-standing tradition, the stone is temporarily sent back to London for the coronation of King Charles III. And the stone was already returned to Scotland in March 2024("The Stone of Destiny - Perth Museum" 2024). Its legacy continues to evoke deep emotions regarding Scotland's historical struggles and national identity.

These six legends Annie's Room, Arthur's Seat, King David I and the white stage, Major Thomas Weir, the Stone of Destiny, The Ghost of the Missing Edinburgh Piper Boy and many others highlight the deep-rooted history and mythology of Edinburgh. Whether steeped in supernatural horror, mythical transformations, or political struggles, each story contributes to the city's enigmatic charm. Edinburgh remains a place where the past and present intertwine, ensuring that these legends will continue to captivate and inspire for generations to come.

Culture and history

Scotland embodies a complex cultural identity forged through centuries of resistance against English domination. Among Scotland's most enduring symbols is the unicorn, a mythical creature that has served as the national animal since the 12th century. The unicorn first appeared on the royal coat of arms under William I, also known as William the Lion, symbolizing purity, strength, and unyielding freedom (Historic UK, "The Unicorn in Heraldry"). By the 15th century, during the reign of King James III, gold coins known as "unicorns" were minted, further cementing its association with Scottish sovereignty (Celtic Crystal Design, "Why Is the Unicorn Scotland's National Animal?"). The unicorn's symbolic power lies in its duality: it represents both innocence and ferocity, qualities that resonated deeply with Scottish kings seeking to project divine authority and national pride (Mason, Kingship and the Commonweal, 112). The unicorn's cultural significance extends beyond heraldry. In Celtic mythology, it was believed to possess magical properties, including the ability to purify water and heal sickness—a metaphor for resilience and renewal (Smithsonian Magazine, "How the Unicorn Became an Enduring Symbol"). Today, unicorn imagery can be found across Scotland, from carvings at St. Andrews University to statues at Edinburgh Castle and Holyrood Palace. These enduring symbols remind visitors of Scotland's rich heritage.

The stag's symbolism ties into broader Celtic traditions, where white animals often served as mediators between humans and the Otherworld. In Brythonic mythology, such creatures were seen as messengers of territorial legitimacy. The transformation of the stag into a crucifix reflects an effort to merge Christian iconography with older pagan beliefs (Green, Animals in Celtic Life and Myth, 112). This blending of traditions highlights how Edinburgh became a site of cultural negotiation between old and new worldviews.

While myths like the white stag evoke wonder, Edinburgh's history also bears the weight of real-life horrors. Grassmarket, now a bustling area filled with pubs and shops, was once one of Scotland's most infamous execution sites. From the 16th to 18th centuries, it witnessed public hangings that drew large crowds and left an indelible mark on the city's psyche. During "The Killing Time" (1660–1688), over 100 Covenanters—Presbyterian dissenters who resisted Anglican rule—were executed here for refusing to renounce their faith (Smout, A History of the Scottish People: 1560–1830, 145). James Renwick, one of the last Covenanters hanged in Grassmarket in 1688, remains a symbol of religious resistance (Edinburgh World Heritage, Old Towns of Edinburgh, 47).

Grassmarket's violent past has given rise to numerous ghost stories. Visitors often report hearing phantom footsteps or seeing shadowy figures near the site where gallows once stood. These hauntings serve as reminders of Edinburgh's darker days when public executions were both spectacle and warning. As Peter Marshall notes in his study on historical memory, "Edinburgh's hauntings are less about supernatural phenomena than about history's refusal to be forgotten" (Beliefs and the Dead in Reformation Britain, 291).

Figure 5 Davies (2025)

Figure 6 Louie (2024)

The 1590-1662 Scottish witch hunts claimed 2,500 lives (84% women), peaking during political crises. Grassmarket's gallows witnessed 300+ executions, including Lilias Adie in 1672—one of few victims with a surviving grave marker (Larner, Enemies of God, 67). The 1649 Cromwellian occupation intensified persecutions, using witchcraft accusations to suppress Presbyterian dissent (Goodare, Scottish Witch-Hunt in Context, 89). Today, the Witches' Well memorial at Castlehill and preserved gibbet postholes in Grassmarket's cobblestones confront visitors with this gendered violence (Paterson, Edinburgh's Witch Hunts, 45).

Scottish queens personified the kingdom's geopolitical vulnerability. Mary, Queen of Scots (1542-1587), raised in France, attempted to balance Catholic and Protestant factions before her forced abdication and 19-year English imprisonment (Fraser, Mary Queen of Scots, 301). Earlier, Margaret Tudor's 1503 marriage to James IV temporarily stabilized relations, but her regency (1513-1524) saw English troops burn Edinburgh in 1544 during the "Rough Wooing," destroying the original St. Giles' Cathedral (Dawson, Scotland Re-formed 1488-1587, 112).

Edinburgh is a city where myth and history coexist in dynamic tension. From King David I's encounter with the white stag to the grim executions at Grassmarket, its cultural heritage reflects both spiritual aspirations and human suffering. These stories not only enrich Edinburgh's identity but also invite reflection on how we remember and reinterpret the past.

Current world events

The main issues we want to discuss with our project is climate change, and to this we've decided to represent on natural disaster regarding each element (fire, water, wind, earth), these examples are a mere part of what it is being experienced in the world nowadays, even though they can be life-threatening or life-changing.

Starting with fire, the example we want to provide is the wildfires occurring in California. On January 7, 2025, multiple wildfires suddenly broke out in the southern region of Los Angeles, California, primarily affecting areas such as Palisades, Eaton, and Hearst. The fires spread rapidly within a short period, becoming one of the most severe natural disasters in the region in recent years. The

Figure 7 California's fire (BBC 2025)

rapid expansion of the wildfires was mainly attributed to extremely dry climate conditions and the strong Santa Ana Wind (BBC 2025). Prolonged drought and high temperatures had significantly reduced vegetation moisture, making the already flammable shrubs and forests even more vulnerable to combustion, further exacerbating the uncontrolled spread of the fire.

The wildfires caused severe destruction to residents and the ecological environment. In addition to casualties, thousands of buildings were burned down, and urban and rural infrastructure suffered heavy damage. The fires forced tens of thousands of people to evacuate urgently, leaving many families displaced and posing significant challenges for post-disaster reconstruction. Furthermore, the massive amount of smoke and toxic gases released by the wildfires led to a sharp decline in air quality, significantly reducing visibility in Los Angeles and surrounding areas. The smoke haze even spread beyond state borders, further affecting neighbouring regions. Notably, the concentration of PM2.5 in the air far exceeded safety standards, posing a direct threat to public health, particularly for children, the elderly, and individuals with respiratory diseases. Additionally, the large amounts of carbon dioxide and other greenhouse gases emitted by the wildfires contributed to global climate change, increasing the likelihood of future extreme weather events and wildfires, thus creating a vicious cycle (BBC 2025).

With water, the example we chose was the floods in Valencia. From October 29 to 30, 2024, the southeastern region of Valencia, Spain, experienced a rare once-in-a-century storm, resulting in severe flooding. In the town of Chiva, rainfall reached 491 mm within just eight hours, exceeding the total precipitation of the past 20 months. The disaster claimed at least 223 lives, with 78 people reported missing, making it one of the most devastating floods in Spain in recent years.

Figure 8 Rain and floods caused by the DANA (The Conversation 2025)

The floods inflicted catastrophic damage on residents and infrastructure, leaving approximately 150,000 households without electricity. Many people were trapped in their homes or vehicles, prompting emergency rescue teams and the military to intervene swiftly (BBC 2024).

Experts suggest that climate change may have intensified the storm. Record-high temperatures in the Mediterranean caused a significant increase in sea evaporation, and when the warm, humid air met cold air from the north, it rapidly condensed, triggering heavy rainfall. Additionally, the geographical conditions of Valencia, combined with accelerated urbanization, further heightened the risk of flooding (BBC 2024).

Regarding the wind element, we wanted to discuss the destruction caused Storm Éowyn, which occurred in the UK. In January 2025, Scotland was hit by the powerful storm Éowyn, which brought hurricane-force winds and heavy rain, causing severe damage across the region. Meteorological data showed that wind speeds in several parts of Scotland approached 114 mph (approximately 183 km/h), comparable to the highest gusts

Figure 9 The storm hit Northern Ireland (Yahoo News 2025)

recorded in Ireland since World War II (The Times 2025). The fierce winds swept through towns and rural areas, damaging infrastructure, uprooting large numbers of trees, and ripping off the roofs of buildings.

The extreme weather conditions caused widespread power outages, leaving around 100,000 households in Scotland without electricity due to damage to power facilities. Additionally, the storm severely disrupted the local transportation system. Roads, railways, air travel, and ferry services were all affected. Some roads were blocked by fallen trees and debris, railway lines were forced to shut down due to strong winds and flooding, numerous flights were cancelled or delayed, and maritime traffic was

suspended due to adverse weather conditions, making travel difficult for residents and tourists alike. Meanwhile, heavy rainfall triggered flooding, further exacerbating the disaster, with homes and commercial buildings in low-lying areas inundated, forcing some residents to evacuate urgently (The Times 2025).

Finally, concluding with earth, we aim to present the example of the earthquake occurring in Turkey-Syria. On February 6, 2023, two powerful earthquakes struck the border region between Turkey and Syria, measuring 7.8 and 7.5 in magnitude, respectively. The disaster resulted in over 59,000 deaths, making it one of the most severe earthquakes of the century. In addition to the massive loss of life, approximately 300,000 buildings collapsed or were severely damaged, infrastructure was extensively destroyed, and economic losses were estimated to exceed $100 billion. Millions of people were displaced, leading to profound social impacts (BBC 2023).

Figure 10 Post-earthquake disaster scene (ALJAZEERA 2023)

This disaster caused severe devastation in Turkey and Syria. Numerous hospitals, schools, roads, and bridges were destroyed, and Hatay Airport was closed due to a fractured runway, severely impacting rescue operations. In response, the Turkish government declared a nationwide state of emergency, dispatching over 100,000 rescue personnel for search and rescue missions and setting up more than 200,000 tents to shelter the displaced. More than 90 countries and international organizations provided assistance, with the United Nations offering $1 billion in aid. However, due to Syria's ongoing conflict, international aid faced restrictions, making post-disaster recovery even more challenging (BBC 2023).

The intensification of global climate change is affecting our environment at an unprecedented rate, with the frequency and intensity of extreme weather events rising significantly. These changes not only exacerbate the instability of ecosystems but also have profound impacts on multiple aspects of human society.

On one hand, climate-related disasters lead to reduced crop yields, water shortages, and the loss of biodiversity, further worsening the unequal distribution of resources worldwide. The frequent occurrence of fire, flood, storm and earthquake has disrupted living environments and threatened basic human survival needs. On the other hand, climate change also has a lasting and profound impact on human mental health. The financial losses, displacement, and long-term uncertainty caused by climate disasters can trigger anxiety, depression, and post-traumatic stress disorder (PTSD), posing significant psychological challenges to affected communities (Adi Fahrudin 2025).

Different points of view between species

Humans can perceive sounds in a frequency range from about 20 Hz to 20 kHz. Not all mammalians species are sensitive to the same range of frequencies. Most small mammals are sensitive to very high frequencies but not low frequencies. For example, some species of bats are sensitive to tones as high as 200 kHz, but their lower limit is around 20 kHz—the upper limit for young people with normal

Figure 11 Human Equal-loudness-level Contour

hearing. One reason for these differences is that small objects, including the auditory structures of these small mammals, are better resonators for high frequencies. In contrast, large objects are better for low frequencies (which also explains why the violin has a higher pitch than the cello), such as bats and those kinds of insects. From this, we can have various hearing, sensing and reflecting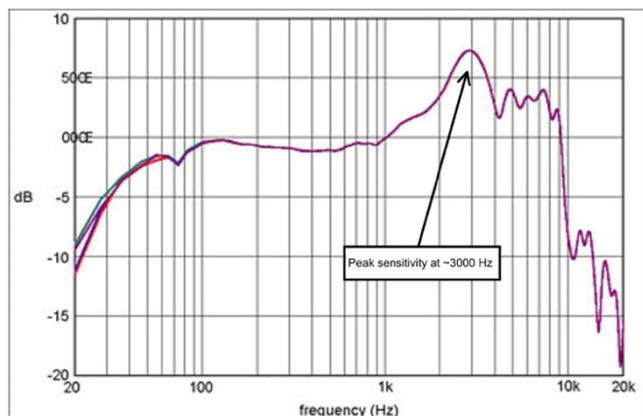 perspectives. In this project, we will get insights into more perspectives rather than just being ourselves. Take dogs as an example. Reporting the frequency range for hearing in dogs and other species is not a straightforward task - the "how" of determining hearing frequency ranges must first be explained. Testing in animals differs from the method commonly used with humans of voluntarily reporting if a sound is heard. When determining the frequency range in animals, an investigator usually must first train the animal to respond to a presented sound stimulus by selecting between two actions using rewards. Often, this response is to try to drink or eat from one of two dispensers when a sound is heard. The sounds are randomly presented from one side or the other, and the subject must select the right dispenser (on the same side as the stimulus) to get the reward; otherwise, no food or drink is dispensed. This is done with the animal hungry or thirsty to motivate responding. Stimuli are different pure tones at varied frequencies (units of Hertz [Hz] - or kilohertz [kHz]) and at different loudness intensities (units of decibels [dB] - a logarithmic measure). The investigator then plots the responses on an audiogram, a graph

Species	Approximate Range (Hz)
human	64-23,000
dog	67-45,000
cat	45-64,000
cow	23-35,000
horse	55-33,500
sheep	100-30,000
rabbit	360-42,000
rat	200-76,000
mouse	1,000-91,000
gerbil	100-60,000
guinea pig	54-50,000
hedgehog	250-45,000
raccoon	100-40,000
ferret	16-44,000
opossum	500-64,000
chinchilla	90-22,800
bat	2,000-110,000
beluga whale	1,000-123,000
elephant	16-12,000
porpoise	75-150,000
goldfish	20-3,000
catfish	50-4,000
tuna	50-1,100
bullfrog	100-3,000
tree frog	50-4,000
canary	250-8,000
parakeet	200-8,500
cockatiel	250-8,000
owl	200-12,000
chicken	125-2,000

Figure 12 Hearing Range in Different Kinds of Animals

of the softest intensity at which the subject was able to detect a specific. The plot of responses is a bowl-shaped curve, steeper on the high-frequency end. A series of five typical audiograms for different dogs is shown in the figure above.

The lowest intensity detected differs between the two studies; I place greater reliance on the Heffner study because it is more current and because he is a widely published and respected audiology researcher. It can also be seen that the greatest sensitivity (i.e. the frequencies that can be detected at the lowest intensities) is in the frequency range of 4-10 kHz. One dog (the Poodle) heard a tone at the low frequency of 40 Hz, but an intensity of 59 dB was required for it to be detected; most of the other dogs didn't respond until the stimulus frequency reached 62.5 Hz. Three dogs (the Poodle, Saint Bernard, and Chihuahua) heard a tone at the highest frequency of 46 kHz, requiring intensities of 64-73 dB. On the other hand, the Poodle heard a 4 kHz tone when it was -4 dB and an 8 kHz tone when it was -3.5 dB. There was no systemic relation seen among the four breeds between high-frequency hearing sensitivity and head size, body weight, or tympanic membrane area.

From the figure, choosing the frequencies for reporting the frequency range for dogs is hard - presumably lower frequencies could have been detected if a loud enough stimulus was used, and likewise for high frequencies. Nevertheless, the following table reports the approximate hearing range for different species with an attempt to apply the same cut-off criteria to all, using data from Fay (1988) and Warfield (1973). Since different experimental methods were used in these different studies, too much value should not be placed on comparing species.
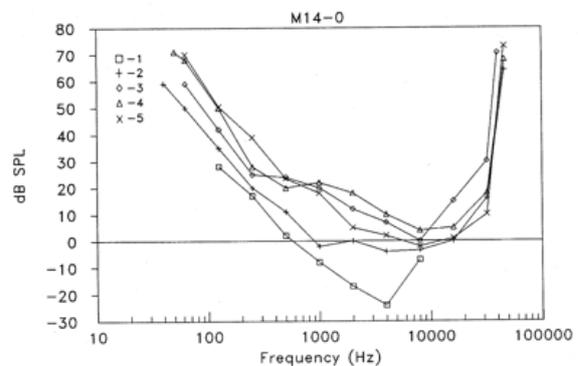

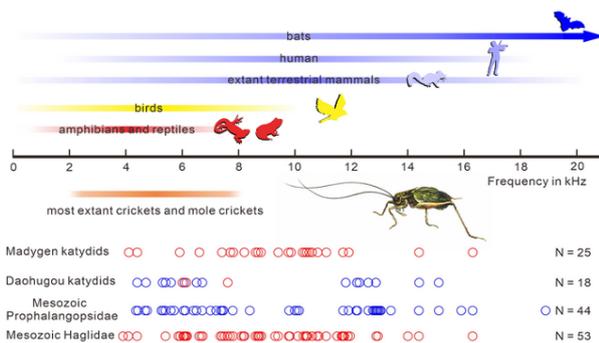*Figure 13 Hearing Range in Different Dogs*

Figure 14 Xu et al. (2022)

In terms of insects, hearing is more indispensable, on which they rely to prey, mate, survive, etc. (oh, so do humans, by the way) Interestingly, insects may have ears on various parts of the body, for example, there are ears on antennae (mosquitoes and fruit flies), forelegs (crickets and katydids), wings (lacewings), abdomen (cicadas, grasshoppers and locusts) and on what passes for a "neck" (parasitic flies). Among moths and butterflies, ears crop up practically anywhere, even on mouthparts. The bladder grasshopper has an abundance of ears with six pairs along the sides of its abdomen. Praying mantises have a single, "cyclopean" ear in the middle of their chest.

Group roles

For this project, we found it extremely important to have designated roles. We did not want them to limit our actions but to ensure that everything was taken care of. We voted on the roles as a group.

- Project lead: Carly Salvador-Almeida Soler
  Functioning as the project lead, they touch base with everyone involved in the project, get a general sense of what everyone is doing, and ensure that things are done in a timely manner.
- Documentation: Chao Li
  As the person in charge of documentation, it is their job to take as many notes as possible to ensure a good record of everything discussed or worked on during the project.
- Planner: Yiting Liu
  The planner's job is to keep track of the calendar, book locations and equipment and organize.
- Sound director: Ruiqi He
  As sound directors, their job is to communicate with the planner to ensure the necessary equipment is used for recordings. They also plan to ensure the group is prepared and come up with a schedule, including what to record and how to record them, etc.
- Image director: Ruotong Wu
  In the role of Image Director, their job involves communicating with the planner to ensure the necessary equipment is used for recordings. They also plan beforehand to ensure the group is prepared and has a schedule, including what to record and how to record it.
- Tech support (Software): Zixuan Yang
  The tech support person, or the person in charge of software, is responsible for learning how the multiple software programs needed for the project work and being prepared to assist when needed.

As previously mentioned, these roles do not imply that they are the only ones working on this or that they are the only ones working on that. There is a comprehension that this is a group project, and every person has to contribute as much as they are capable of.

Technical aspects

Sound recording plan:

- IRs recording

We will record impulse responses of a tunnel and use them to create an immersive underground environment adopting Genelec speakers, Fireface interface, Sennheiser AMBEO VR microphone, (Gefell pair microphones), MixPre-6 II recorder and cables in ambisonics or stereo format. (just in case we cannot book the ambisonics microphone)

- Piper sound

We will record a piper playing in one of the studios in Alison House by utilising Neumann 103 microphone, microphone stand, and mic shield to enhance and highlight the theme of the myth.

- Specific sound effects to be recorded
    - Doors opening and closing
    - Footsteps
    - Sounds relevant to disasters, which need to be discussed later
    - Other sounds to be discussed.

Image recording plan:

- Textures
- Sourcing videos to portray disasters
- The POV of the Piper boy: open the door, wake up from the nightmare, wander in the tunnel, run away from the tunnel, follow the dim light...
- Some video by an unusual angle, such as low-angle shot

The equipment we are going to need to achieve the project is listed below:

Audio equipment:

- Sound Devices - MixPre-6 II
- Microphone Cable: XLR Cable
- Sennheiser MKH 416
- Microphone Stand
- Rycote - Windshield/Jammer - 21411
- Beyerdynamic DT880
- AA Rechargeable Battery Kit
- Sennheiser - AMBEO VR Mic
- Soundfield - ST250

- [Genelec – 8040 – Speaker](#)
- [RME – Fireface UC](#)
- [Neumann TLM 103 (MC33)](#)
- [Microphone Pop Shield](#)
- [Gefell – M300 Pair](#)
- …

Video equipment:

- Canon Eos 750d
- Tripod
- Gimbal head

Other equipment:

- Sd cards
- Hard drives

Video editing software:

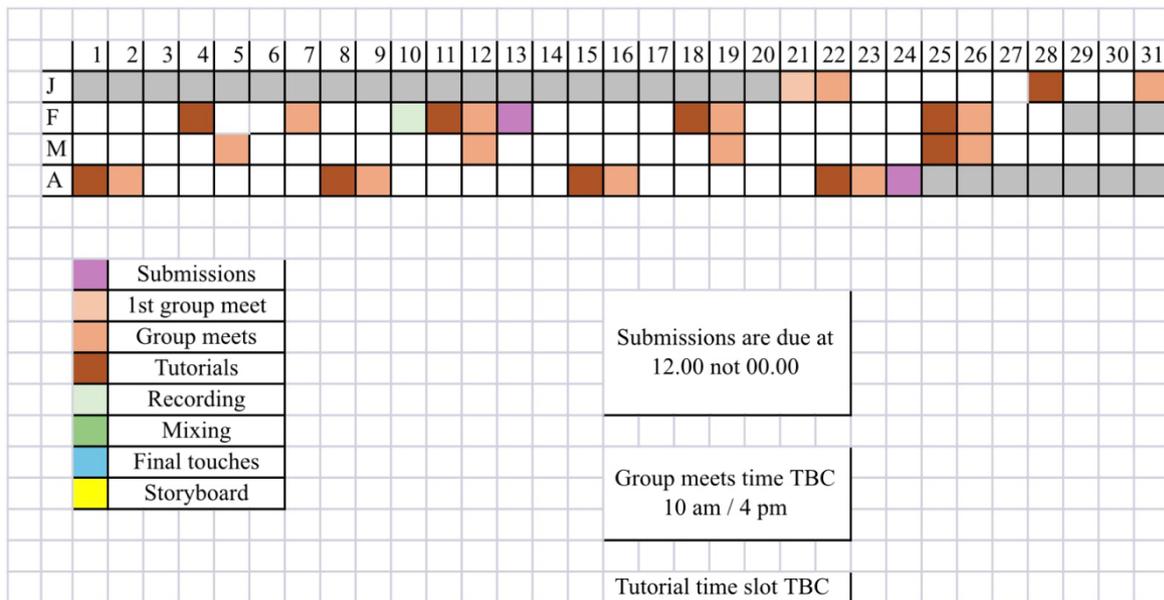- Premiere pro

3D modelling software:

- 3ds Max

Audio editing software:

- Reaper
- Pro Tools
- Wwise (maybe)

Other software used:

- Excel
- Microsoft
- Teams

Planification

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
J																															
F																															
M																															
A																															

Legend:
- Submissions
- 1st group meet
- Group meets
- Tutorials
- Recording
- Mixing
- Final touches
- Storyboard

Submissions are due at 12.00 not 00.00

Group meets time TBC 10 am / 4 pm

Tutorial time slot TBC

Submissions:

- 1st 13th of February
- 2nd 24th of April

Locations

- McEwan Hall underground tunnel for recording IR and 3D modeling

- Rodney street tunnel for recording IR and 3D modeling

- Alison House Atrium (G.10) for project final presentation

- Alison House studios for sound effects recording and editing sound

- Alison House computers for modelling

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